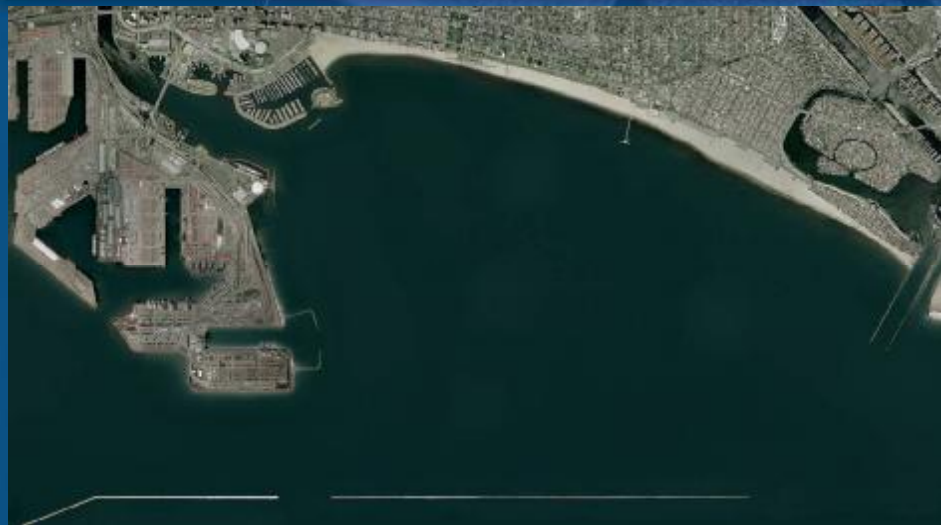




This study can help us answer these questions

- Moffatt & Nichol
- Kinnetics Laboratories, Inc.
- Dr. Phil King
- Clark Stevens

The Breakwater is a federally owned and operated structure



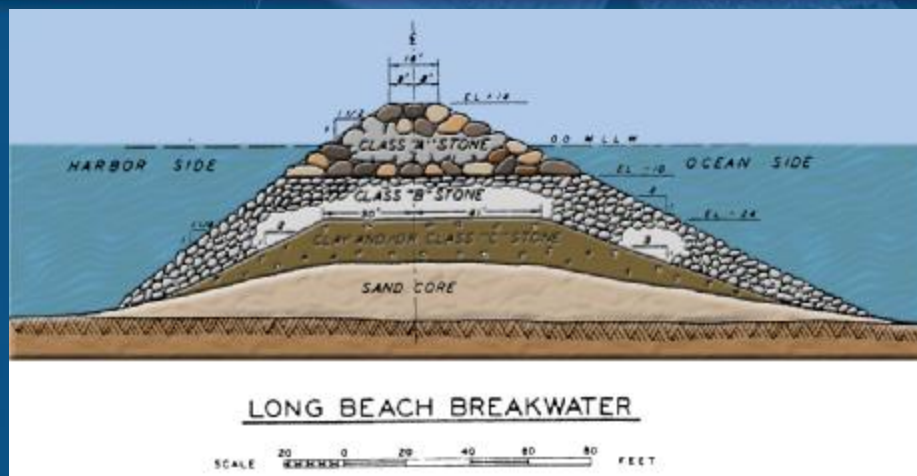
The Breakwater is a federally owned and operated structure



SP-584. Roosevelt Base, Peralta Island, California. 29 Sept. 1941; 2:05 p.m. Tide +4.2 ft. Contract N27-4279. Item 16. Floating derricks No. 4-600 (right) and No. 4 (left) piling riverside "A" rock on outer breakwater.

montali & nichol

Breakwater Profile View



montali & nichol

Purpose of recon study is to determine potential for federal interest



Need the community's best and brightest ideas now

From the public and City Council debate on this issue, the primary Army Corps mission that this Reconnaissance Study will address is Ecosystem Restoration through improved water quality, while continuing to protect navigation and coastal areas from storms. Increased recreational and tourism benefits, although outside the Army Corps' core mission, are also important to Long Beach.

City of Long Beach RFP



Local sponsors must also be aware of potential costs

- Fed is driving the bus since their breakwater
- City also has mission and goals
 - Improve water quality
 - Improved water-related recreation
 - Improve tourism
- Feasibility study is a 50-50 cost sharing arrangement with the Fed
- Locals responsible for 35% of construction costs

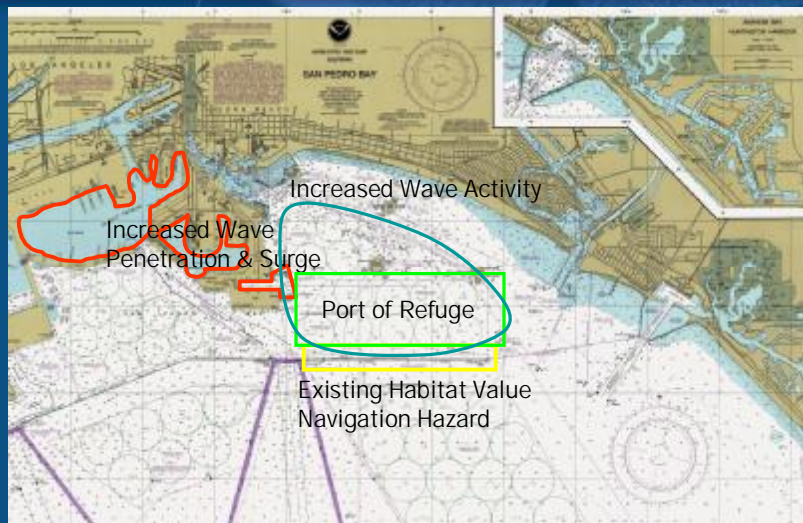
Stakeholder Issues: Surfrider Foundation

- Want beach like Seal, Huntington Beach, South Bay – the difference is waves
- Want to improve water quality and reduce trash and debris
- Want to improve sediment quality along the shoreline
- Want to consider reduced breakwater height and opportunities to plant kelp
- Want economic benefit of a cleaner beach

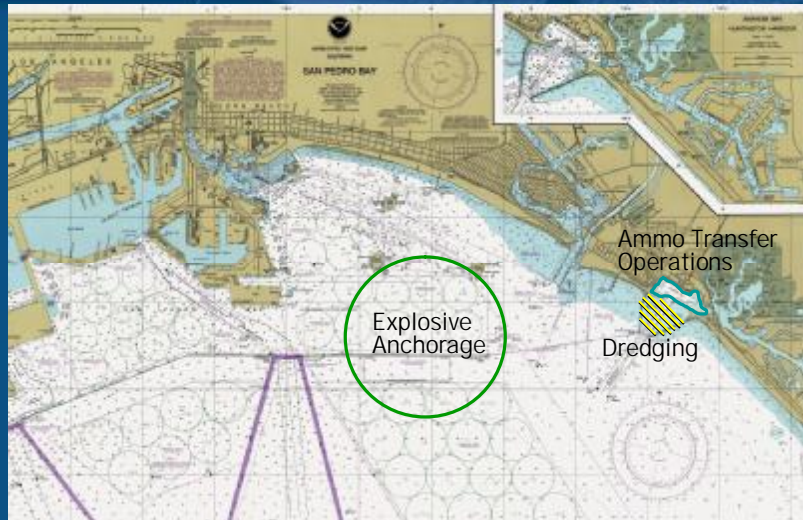
Stakeholder Issues: LB Lifeguards & Marinas



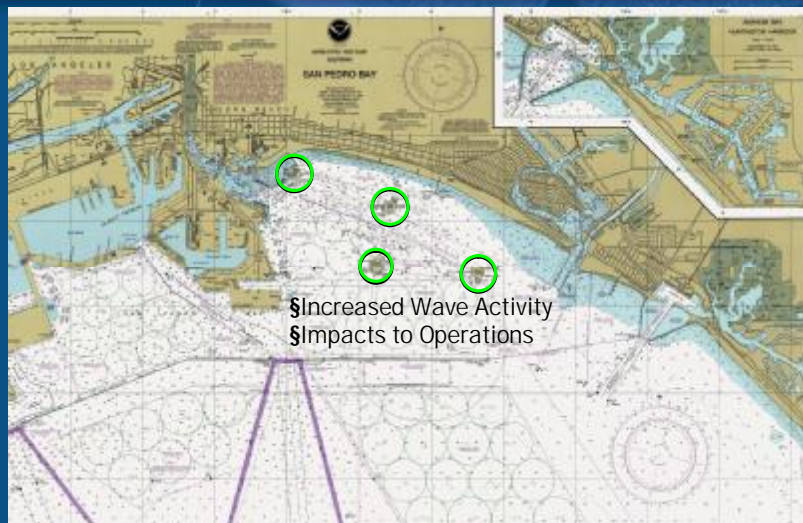
Stakeholder Issues: Port of Long Beach / Port Pilots / Port Operators / USCG



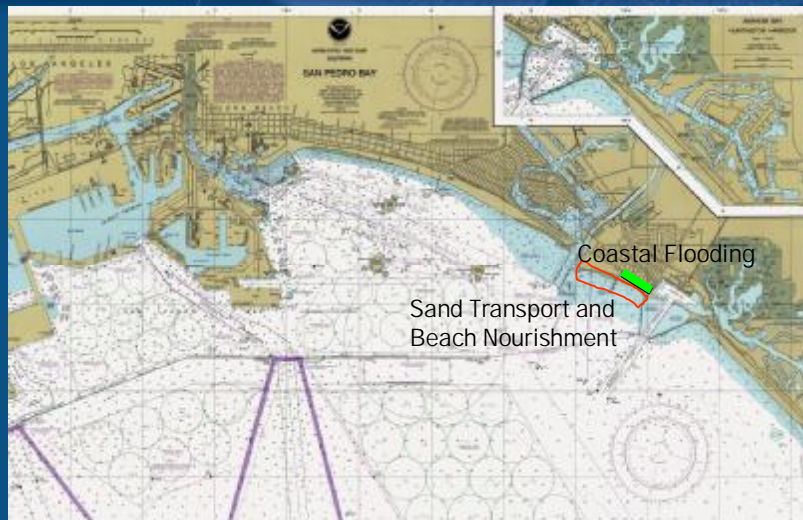
Stakeholder Issues: U.S. Navy – Seal Beach Naval Weapons Station



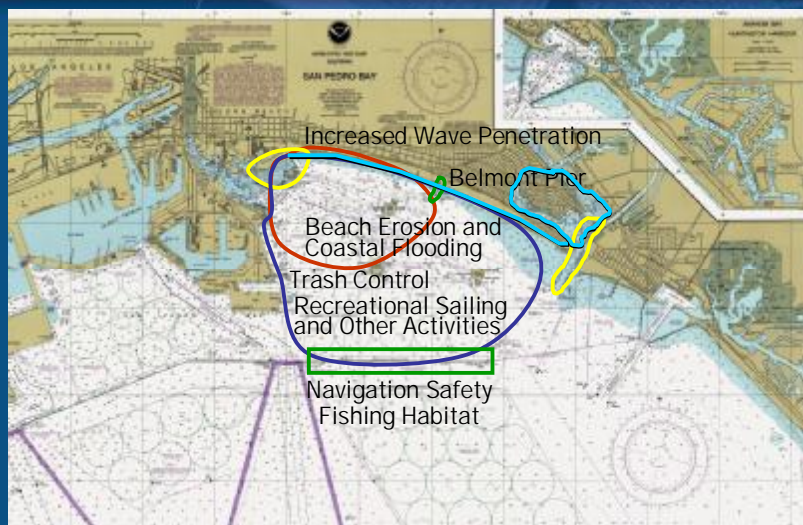
Stakeholder Issues: THUMS



Stakeholder Issues: City of Seal Beach



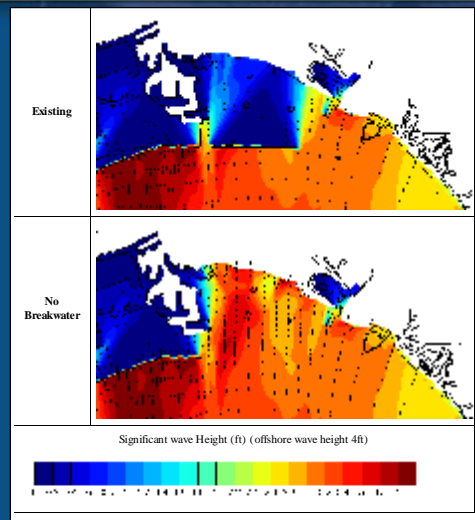
Stakeholder Issues: Peninsula Beach Preservation Group



Breakwater does provide important function that must be considered

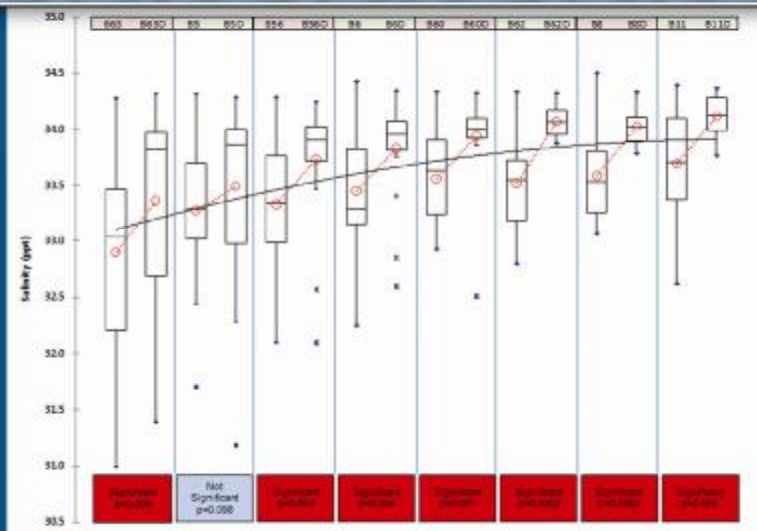


Breakwater does provide important function that must be considered

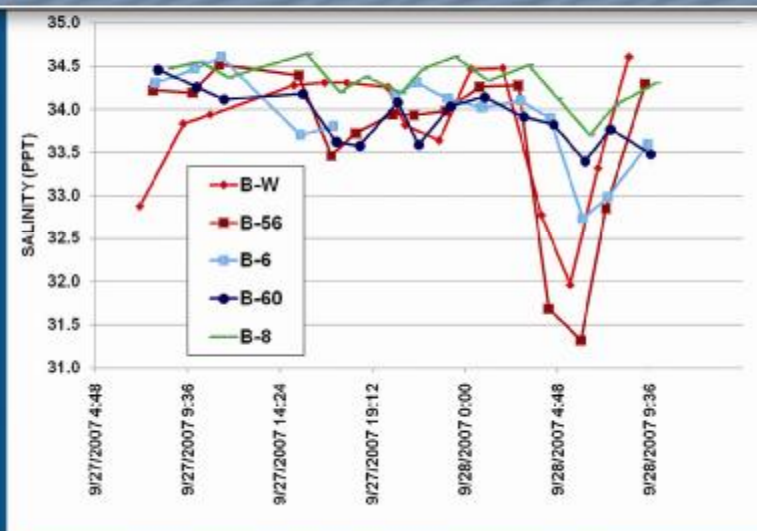




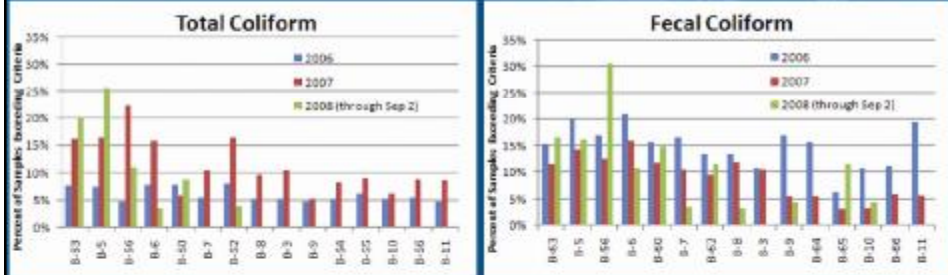
Box Plots of Salinity-Paired Sites



Shoreline Salinity Over 24 Hours



Exceedence of Single Sample Criteria City of Long Beach AB411 Monitoring Data, 2006-2008



The Economic Benefits of Reconfiguring the Long Beach Breakwater

Dr. Philip King
Economics Dept.
San Francisco State University
Email: pking@sbcglobal.net

Potential Economic Benefits

- Increased Attendance due to Cleaner Water/Better Surf
- Higher Recreational Value per Visitor
- Decreased Water Borne Illness



Methodology: Demand

- Estimate Demand from Local Residents who now go Elsewhere
 - Increase in Demand for Recreation
 - Increase in Demand for other Beach Activities
 - Increase in Demand Nearby Pavement Activities



Methodology: Day Use Value

- Cleaner Water/Better Surf Increases Recreational Value/Visit
- Estimate Increase
 - Estimate Day Use Value Currently
 - Estimate Day Use Value After
- Estimate Reduction in Illness



Challenges

- Budget Limited
- USACE Methodology must be Used
 - Limits Recreational Benefits to 50% of Total
 - Methodology must be consistent with USACE
- Non-Recreational Benefits may be Small
- Since current attendance limited, reduction in water-borne illnesses likely to be small



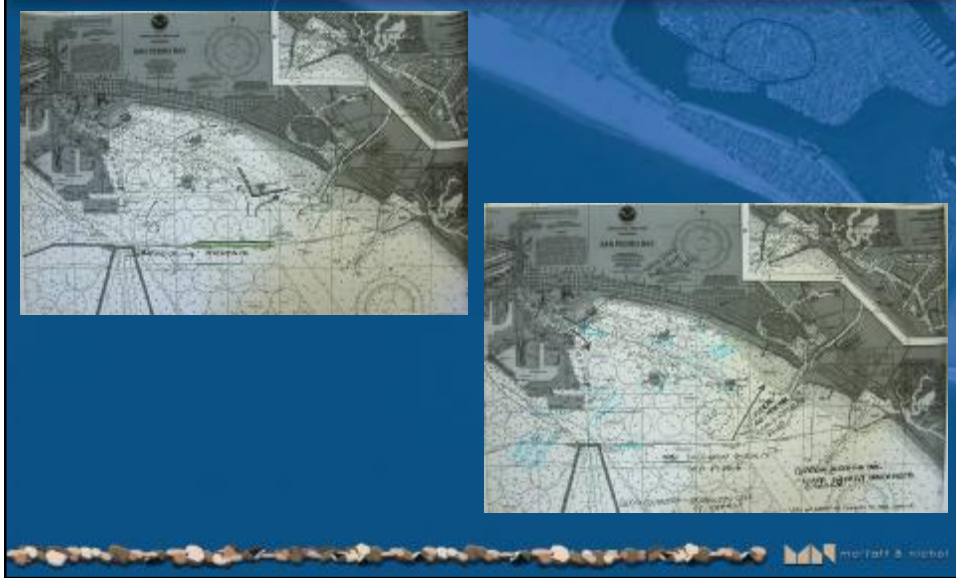
COE Policy for Ecosystem Restoration

- Restore to Less-Degraded, More Natural Conditions
- Full Integration with Social and Economic Goals
- Consider from Watershed Perspective
- Analyze both Monetary and Non-Monetary Benefits
- Coordination with Missions of Other Agencies

Is it feasible to reconfigure the Long Beach Breakwater?

- Restoration of nearshore to open coast habitat
- Improved transport of river sediments and contaminants away from the beach and nearshore habitat
- Improved benthic habitat
- Increasing rocky shallow water habitat
- Reduction of bacterial water quality exceedences on the beach

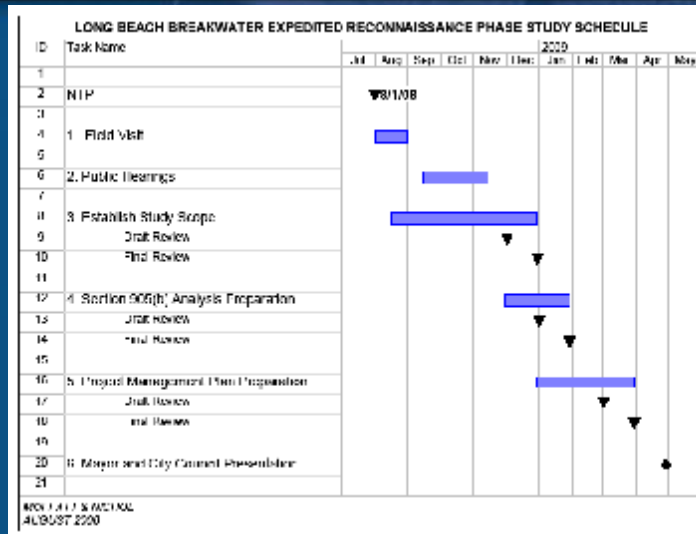
Sample Workshop Design Exercise



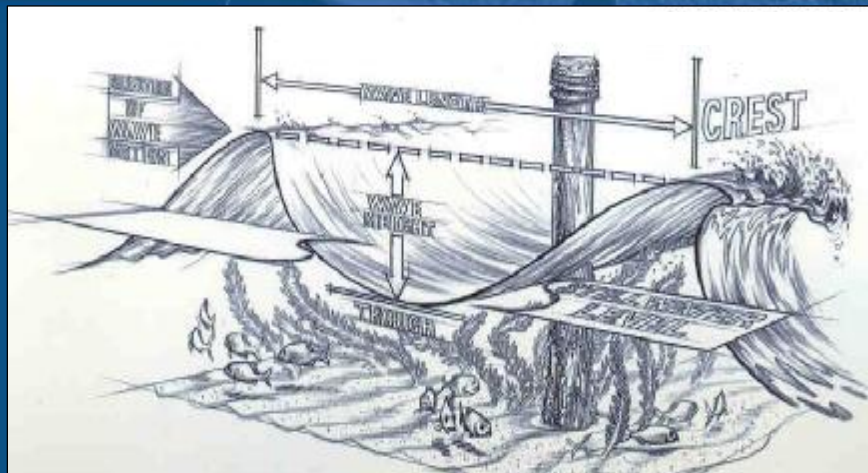
Workshop Outcome Potential Breakwater Relocation Options



Next Steps

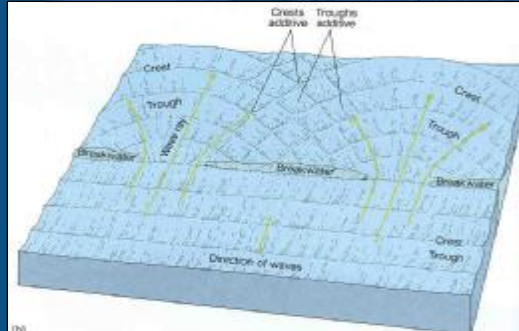
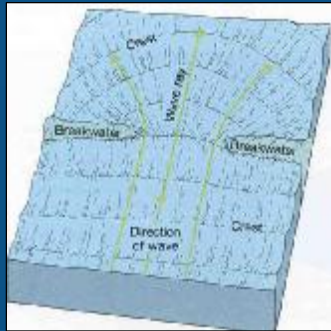


Wave Kinematics



"Book of Waves" (Kampion)

Wave Diffraction




Hydraulic Stability of Rubblemound Structures



Stay Tuned...

Project Website:

www.longbeach.gov/citymanager/ga/breakwater

 mottall & siebel